

SUPPLEMENTARY MATERIAL

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Supplementary Table S1. Characteristics of the study population of COVID-19 cases by vaccination status. Navarre, Spain, 3 January to 20 March 2022 (n = 58,402)^a

	Unvaccinated		Fully vaccinated <6 months before positive test		Fully vaccinated ≥6 months before positive test		Fully vaccinated + additional dose	
	n	%	n	%	n	%	n	%
Age groups, years								
18 – 44	2428	62.7	20,091	78.3	3119	29.8	3145	17.1
45 – 64	1150	29.7	5362	20.9	6950	66.4	6662	36.2
65 – 74	173	4.5	178	0.7	192	1.8	4238	23.0
75 – 84	74	1.9	21	0.1	120	1.2	2813	15.3
≥ 85	48	1.2	10	0.0	86	0.8	1542	8.4
Sex								
Male	1820	47.0	12,448	48.5	4878	46.6	7919	43.0
Female	2053	53.0	13,214	51.5	5589	53.4	10,481	57.0
Underlying conditions								
Immunocompromised	35	0.9	147	0.6	86	0.8	232	1.3
Other major chronic conditions	895	23.1	5133	20.0	2916	27.9	8396	45.6
None	2943	76.0	20,382	79.4	7465	71.3	9772	53.1
Hospitalised								
No	3723	96.1	25,637	99.9	10,381	99.2	18,100	98.4
Yes	150	3.9	25	0.1	86	0.8	300	1.6
Severe disease^b								
No	3832	98.9	25,653	100.0	10,446	99.8	18,317	99.5
Yes	41	1.1	9	0.0	21	0.2	83	0.5
Admitted to the intensive care unit								
No	3858	99.6	25,657	100.0	10,461	99.9	18,388	99.9
Yes	15	0.4	5	0.0	6	0.1	12	0.1
Death								
No	3843	99.2	25,658	100.0	10,450	99.8	18,327	99.6
Yes	30	0.8	4	0.0	17	0.2	73	0.4
Month								
January	3117	80.5	23,431	91.3	8476	81.0	11,077	60.2
February	550	14.2	2010	7.8	1343	12.8	4416	24.0
March	206	5.3	221	0.9	648	6.2	2907	15.8
Period								
3 Jan-20 Feb (>90% of BA.1)	3592	92.7	25,278	98.5	9575	91.5	14,649	79.6
21 Feb-20 Mar (mix of BA.1 and BA.2)	281	7.3	384	1.5	892	8.5	3751	20.4
Type of test								
RT-qPCR	522	13.5	1513	5.9	723	6.9	1896	10.3
Antigen test	3190	82.4	23,296	90.8	9232	88.2	13,912	75.6
Antigen self-testing	161	4.2	853	3.3	512	4.9	2592	14.1
Total	3873	100	25,662	100	10,467	100	18,400	100

^a Cases partially vaccinated are not included in this table.

^b Severe disease includes confirmed cases who were admitted to intensive care unit or who died due to COVID-19.

Supplementary Table S2. Sensitivity analyses of risk reduction of hospitalisation and severe disease in vaccinated COVID-19 cases in weeks with more than 90% of cases due to the SARS-CoV-2 Omicron BA.1 subvariant. Navarre, Spain, 3 January to 20 March 2020 (n = 53,580)

	All cases	Hospitalised or severe COVID-19 cases ^a		Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI) ^b
	n	n	%		
Risk reduction of hospitalisation					
Unvaccinated	3592	147	4.1	1	1
Partially vaccinated	523	3	0.6	0.14 (0.04-0.43)	0.20 (0.06-0.65)
Fully vaccinated <6 months before positive test	25,278	23	0.1	0.02 (0.01-0.03)	0.05 (0.03-0.08) ^c
Fully vaccinated ≥6 months before positive test	9575	81	0.8	0.20 (0.15-0.26)	0.15 (0.11-0.20) ^{c,d}
Fully vaccinated + booster dose	14,649	269	1.8	0.44 (0.36-0.54)	0.05 (0.04-0.07) ^d
Risk reduction of severe disease					
Unvaccinated	3592	41	1.1	1	1
Partially vaccinated	523	2	0.4	0.33 (0.08-1.38)	0.74 (0.17-3.24)
Fully vaccinated <6 months before positive test	25,278	8	0.0	0.03 (0.01-0.06)	0.11 (0.05-0.24)
Fully vaccinated ≥6 months before positive test	9575	21	0.2	0.19 (0.11-0.32)	0.17 (0.10-0.30) ^d
Fully vaccinated + bosster dose	14,649	77	0.5	0.46 (0.31-0.67)	0.06 (0.04-0.09) ^d

CI: confidence interval.

^a Severe cases included confirmed cases who were admitted to intensive care unit or who died due to COVID-19.

^b Odds ratio adjusted for age (18-44, 45-64, 65-74, 75-84 and ≥85 years), sex, underlying conditions (immunocompromised, other major chronic conditions and none), and month.

^c Comparison between fully vaccinated cases ≥6 months and <6 months before positive test, p-value<0.05.

^d Comparison of cases fully vaccinated plus additional dose versus fully vaccinated cases ≥6 months before positive test, p-value<0.001.

Supplementary Table S3. Sensitivity analyses of risk reduction of hospitalisation or severe disease in vaccinated COVID-19 cases including RT-qPCR or antigen test results and excluding self-testing results. Navarre, Spain, 3 January to 20 March 2022 (n = 54,811)

	All cases	Hospitalised or severe COVID-19 cases ^a		Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI) ^b
	n	n	%		
Risk reduction of hospitalisation					
Unvaccinated	3712	148	4.0	1	1
Partially vaccinated	527	4	0.9	0.18 (0.07-0.50)	0.26 (0.09-0.73)
Fully vaccinated <6 months before positive test	24,809	25	0.1	0.02 (0.02-0.04)	0.06 (0.04-0.09) ^c
Fully vaccinated ≥6 months before positive test	9955	85	0.9	0.21 (0.16-0.27)	0.15 (0.11-0.21) ^{c,d}
Fully vaccinated + booster dose	15,808	290	1.8	0.45 (0.37-0.55)	0.06 (0.04-0.07) ^d
Risk reduction of severe disease					
Unvaccinated	3712	40	1.1	1	1
Partially vaccinated	527	2	0.4	0.35 (0.08-1.45)	0.73 (0.17-3.18)
Fully vaccinated <6 months before positive test	24,809	9	0.0	0.03 (0.02-0.07)	0.13 (0.06-0.29)
Fully vaccinated ≥6 months before positive test	9955	21	0.2	0.19 (0.11-0.33)	0.18 (0.10-0.32) ^d
Fully vaccinated + booster dose	15,808	80	0.5	0.47 (0.32-0.69)	0.06 (0.04-0.10) ^d

CI: confidence interval.

^a Severe cases included confirmed cases who were admitted to intensive care unit or who died due to COVID-19.

^b Odds ratio adjusted for age (18-44, 45-64, 65-74, 75-84 and ≥85 years), sex, underlying conditions (immunocompromised, other major chronic conditions and none), and month.

^c Comparison between fully vaccinated cases ≥6 months and <6 months before positive test, p-value<0.05.

^d Comparison of cases fully vaccinated plus additional dose versus fully vaccinated cases ≥6 months before positive test, p-value<0.001.